

```

*****
*
*      QQQQQQQQ      ZZZZZZZZZ      XX      XX
*      QQQQQQQQQQ    ZZZZZZZZ      XX      XX
*      QQ      QQ      ZZ      XX XX
*      QQ      QQ      ZZ      XXX
*      QQ      QQ      ZZ      XXX
*      QQ      QQ QQ      ZZ      XX XX
*      QQQQQQQQQQ    ZZZZZZZZZ      XX      XX
*      QQQQQQQQ      ZZZZZZZZZ      XX      XX
*      QQ
*
*****

```

The Journal Covering Amateur Radio & Sinclair Computers  
 ZX-80; Micro-Ace; ZX81; T/S 1000, 1500, & 2068; QL  
 Alex. F. Burr, K5XY, Publisher  
 2025 O'Donnell Drive  
 Las Cruces, New Mexico  
 88001

Volume 6 Number 5 (\$1.50 / issue) April 1988

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PUBLISHER'S NOTES  
K5XY

I have received indications from several sources that Quantum Computing is going out of business. I have personally written several letters and made phone calls which have not been answered. I am sorry to see these indications that the company may be having difficulties. The company has been a long time advertiser in QZX and it helped introduce me to the QL. The people with whom I dealt were always very enthusiastic about the potential that the QL represents. You will notice that their ad is still running in this issue. The reason that it is still running is that the company has already paid for this and several future ads, so I cannot arbitrarily go counter to the instructions which the company gave QZX when there was last any communication from them. However, I suggest that, before sending them any money, you make sure that you have a reasonable chance of receiving whatever it is you wish.

I guess the QZX unclassified ads do help sometimes. LUBMAD reports that he got the software that he was looking for. Also, within 28 hours of the time I put the March QZX into the mails, I had in my hand the money for one of the books which was advertised in the last issue.

Occasionally subscribers write to me for help with vendors who have not responded as one might wish. I have never known anything which I have done to help, but I did receive an unusual example of a vendor's efforts to be helpful in the mail recently. A Canadian subscriber wrote about a visa charge mixup with the WMJ company which recently had their catalog distributed with one of the issues last year. The interesting thing about this consumer problem was that I received a copy of the letter which WMJ wrote explaining and attempting to resolve the difficulty before I received the copy of the letter which the subscriber had written to WMJ.

Now that is what I call fast response to a customer complaint.

The newsletter of the Sinclair Amstrad Radio User Group (from Great Britain) reports that QL's are returning there from America. American ones are being sold in Great Britain for about 80 pounds plus postage because they have more RF shielding.

Although the number of Sinclair users and the number of Sinclair vendors are declining, the number of Sinclair Computer Fests is increasing. The recent affair in Florida had about 400 people attending. Although that was not much over half of the number attending the Fest in Indiana during the summer, it is a very respectable number. Now comes notices of two more Fests to be held. Both are currently scheduled for August. One in Cleveland August 26 and 27; the other August 6 and 7 in Portland, Oregon.

THE FUTURE OF QZX  
K5XY

The recent postal rate increase has been used as an occasion to reassess the future of QZX. It is clear that some changes have to be made since costs have gone up so noticeably.

If Sinclair were still selling lots of computers, our subscription base would be growing and the unit costs might be staying the same but that is not the case. Our subscribers are unusually loyal, but the number of subscribers has been steadily falling. Between 30 and 40 percent renew, a very high percentage. Steady efforts have been made to get new members, but most ads are just too expensive; and it is difficult to offer services which merit free mention in places where Sinclair owners who are amateurs might see references to QZX. The recent development of the QZX Index Book was one of these efforts, and it did bring in a few more members but not enough to reverse the trend.



In short, postage costs have gone up, particularly for our members in Canada; and printing costs have doubled in the last year, both from price increases and from loss of quantity discounts. Therefore I propose to make three major changes.

First, the bad news. The subscription price will be raised to \$15.00 for members in Canada, Mexico, and the United States. This price will still be significantly less than that charged by other national Sinclair magazines, which charge more and publish half as often (but, I must admit, do a more professional job). The cost for other countries will remain the same because I just cannot bring myself to charge more than \$25.00 for QZX even if the dollar is falling with respect to most other currencies. I will make the increase effective at the end of May to enable anyone who so desires to renew for as long as one wants at the old rate of \$12.00. The price of back issues will remain at \$1.00 each postpaid.

I had a hard time writing the above paragraph. I know that the increase in subscription rate will be hard on some with fixed incomes and will cause others who have taken up with different computers to reassess the value of QZX to them. But every analysis that I make shows the unit costs of QZX steadily increasing, and I cannot subsidize the journal with money as well as time.

Second, the good news. QZX will be sent by first class mail starting with the May issue. I could say that this change will result in a dramatic increase in service to the members, but I do not think that will really be the case. It is fashionable, especially now, to complain about the poor mail service; but my experience has generally been good. I have received few complaints of non-delivery; and delivery, at least in the vicinity of Las Cruces, has been very prompt. I have always been treated very courteously by the postal employees. Still, the change in class

of mailing should speed up the delivery of QZX, at least for those some distance from Las Cruces; and the automatic forwarding and return for address correction services of this class of mail should result in better subscription fulfillment.

Third, a neutral announcement. The magazine will be professionally xeroxed instead of printed. I do not think this change will result in any reduction in readability. It will result in more flexible printing options. It will be easier to change the number of pages in each issue (which will probably average about 10) to fit the amount of information available because this number can be adjusted in units of two pages rather than four. The press run can be more easily adjusted to the number of copies needed. This adjustment will result in a substantial saving of printing costs. Unfortunately it will also mean that the chances of obtaining back issues will be reduced. It will also mean that I will have to provide less back issue storage space. I will try to arrange the margins so that the issues can be punched and placed in a three ring binder. The biggest advantage to the reader will be a shorter production time so that it will be easier to bring current news and product information to our members.

If these changes had been instituted for this issue the savings in cost would have been about \$30.00. I will be happy to consider any suggestions for the improvement of QZX which anybody would care to make.

#### THE T/S 1000 ON PACKET VE7VL

I have been running a T/S 1000 on VHF packet radio for over a year, using a Comlink I and a MFJ 1270 TNC, with success. However, unless you are a born masochist, do not try it for long without a full size keyboard.

Several months ago I ordered some T/S 2050 Westridge modem cards from Grey and Clifford. (Now just Grey. See March QZX.) They arrived with some interesting documentation including a schematic and instructions on modifying a card to provide a RS 232 serial port.

This is not a difficult project, which uses three IC's and a few resistors and capacitors. I mounted everything, including the DB 25 output connector to the TNC, on a small piece of perf board, about 2" x 3", fastened to the modem card with miniature brackets.

It was also my first attempt at wire wrap technique. I must have done everything right, because it worked first time - not always the case in my workshop. All power is taken from the computer, so no external supplies are needed.

About the same time I got the cards, I also ordered from Silicon Mountain Computers (a.k.a. Fred Nachbaur, another QZX advertiser) their ZXT80 terminal program and "Scram" non-volatile plug-in memory board.

I do not intend to list all that the program does, as he has it all set out in his advertisement of a few months back. Sufficient to say that it is obvious that Fred put a lot of practical thought into putting the program together. It comes with a 40 page booklet of fine print instructions and information for both the novice and the expert. Intended for use with the Westridge (2050) or the Byte-Back (MD-2) modem, it could be changed for use with most other modems if you are knowledgeable enough.

It will also support "big" printers, if you want to copy files or data over the air.

I have had all this running for a couple of months now with no problems (except the dreaded "Sinclair wobble" which wipes out the whole program when it happens), and the obvious question is - which do I prefer?

Pluses for the ZXT80 are the split screen which prints your outgoing text in the top and incoming text in the bottom portion. A redesigned character set with upper and lower case is also provided. Punctuation and ASCII symbols are handled in a very logical fashion. The ability to select 40, 60, or 80 column widths is handy, making you more compatible with other computers although the 80 column text is not that easily read.

What I miss is a true "delete" key to erase my typing errors. The program was designed for use with a telephone modem, not for packet radio, and you cannot delete something that has already been sent on its way. Of course, this does not apply on packet if you catch your mistake before the packet is transmitted.

Loading the program takes five minutes; this can seem forever if you are in a hurry. The one simpleUSR command with Comlink I has an advantage. If the program gets wiped out in the middle of a QSO, you can get back on line to the other station very quickly; and he may never realize you have been away.

One other feature of the ZXT80 program is that the display within the border of the window(s) can be reversed, giving white text on a black background which is easier to read, rather than the Sinclair standard of black on white. Fortunately, this can be changed at the user's option. I already have an inverse video board between the computer and the monitor, so I can have the area outside the window black also. That's even better! (Sorry about that, Fred.)

The Comlink I has upper and lower case as well as ASCII symbols, and is a lot simpler to get you on packet. Just put it between your T/S 1000 and the TNC and away you go.

The ZXT80 program requires 16K memory, a NVM board, and a modem with RS 232 port, but has much greater versatility.

As with most decisions, pay your money and make your choice!



# Hey LOOK!

# Out!

# The

# Secret's



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\**CQ*<sup>TM</sup> 5 articles; *Ham Radio*<sup>TM</sup> 10 articles; *QST*<sup>TM</sup> 5 articles & *73*<sup>TM</sup> 6 articles = 26 articles for 1987 for other major ham magazines

# TIMEX 1000 SALE

A good quantity of T/S 1000 computers are for sale at close out prices. These units are for the most part complete with instruction manuals, 16K memory, power supplies, keyboards, and up to 3 pre-recorded tapes. We believe them to be, basically, new - either factory seconds or customer returns - Our tests found only 5 out of about 75 that were either not complete or that failed to work properly.

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articles - 30 articles for 1987 for other  
articles: Q2TM 2 articles & 37TM 2  
articles: Q1TM 2 articles; from Radio 10



TELECOMMUNICATIONS ON THE QL  
Michael Mitchell

The QL, for all its power and versatility, is limited in telecommunicating at 300 baud without a hardware link between the serial port and the modem. The following program which appeared in the Data Expansion of the Dallas/ Ft Worth group will get you on line to a TNC or a telephone at 300 (or even 1200) baud.

```
1 REMark      300/1200 baud terminal
2 REMark      MIKE_TERM
3 REMark      developed by
4 REMark      MICHAEL MITCHELL
5 REMark      attribution requested
6 REMark      Sinclair/Timex User Group
7 REMark      Boston Computer Society
100 WINDOW 465,204,6,0
105 BORDER 1,0,7: LB=127
110 CLS: POKE 163976,255: CLS#0
120 PRINT#0,,"Choose Baud:  H=1200,
    L=300"
130 IF INKEY$(-1)="h" THEN BAUD 1200:
    ELSE BAUD 300
140 CLS#0: OPEN#5,SER2i
150 PRINT#0,,"F5=QUIT", "ALT^C=^C",
    "^G=BEL"
160 REPEAT TERM
170 TERMINAL: PRINT#0,,"Exit?(y/n)"
180 IF INKEY$(-1)="Y" THEN EXIT term
190 END REPTerm
200 CLOSE#5
205 PRINT#0,,"Re-run/Quit? (r/q)"
210 IF INKEY$(-1)="R" THEN RUN: ELSE
    STOP
220 DEFine PROCedure terminal
230 REPeat key_loop
240 a=CODE(INKEY$(#5,0))&&LB
250 IF a=13 THEN PRINT
260 IF a=7 THEN BEEP 2000,15
270 IF a>31 THEN PRINT CHR$(a);
280 b=CODE(INKEY$)
290 IF b=248 THEN EXIT key_loop
300 IF b=255 THEN b=0
310 IF b=0 THEN NEXT key_loop
320 IF b=10 THEN b=13
330 IF b=208 THEN b=7
340 PRINT#5, CHR$(b);
350 END REPeat key_loop
360 RETURN
370 END DEFine terminal
```

Save as MIKE\_TERM.bas

This program gets around a problem which the QL has in sending a CTRL C, a character which some Sinclair BBS use to end a message. The operating system of the QL traps the CTRL C. MIKE\_TERM uses ALT CTRL C to send the CTRL C. See line 300.

After keying in the program, load and run it with the modem attached to ser2. Choose a data rate and then go on line. Now get the attention of the modem by starting any command with AT, if it is a Hayes type modem. With a TNC you just have to turn it on and you are ready to go.

#### BRITISH SOFTWARE

On the next page is a list of some British software which is available for the Spectrum. I ordinarily would not publish this list because it is difficult for US amateurs to buy and is not for one of the computers which is popular on this side of the Atlantic. But I know of no equivalent software which is easier to buy and many hams are modifying their T/S 2068 with another ROM so it can use some of the British Spectrum software which is available.

There is still the matter of paying for the software if you decide to buy it. The list mentions the price as being special to SARUG members (SARUG is the British equivalent of QZX subscribers). Furthermore payment is requested in British pounds and no mention of VISA cards is made. Some US banks do carry travelers check in pounds and the post office will sell international money orders, but I suggest you write to the address given for suggestions on how to pay for the items you wish.

These programs have been extensively tested and are widely used. It is of interest that none of them require any additional hardware interfacing before they are useful.

Further information can be obtained from

Paul Newman, G4INP  
SARUG  
3 Red House Lane  
Leiston  
Suffolk IP16 4JZ  
Great Britain

Because the British postal rates are at least as high as the US ones, a self addressed envelope and at least one IRC would be appreciated.

### BITS AND BYTES

120 On the T/S 2068, it is possible to mess up the joystick ports if a wildly erroneous value is put into the SOUND command. Parameters to the SOUND command are not fully validated, therefore it is possible to specify a number beyond the valid range for a given operation and not get an error. For example, you can write a value greater than 63 to the Enable Register (Reg. 7), possibly changing the I/O port used for reading the joysticks from input to output. If you specify a number larger than 255 (FFH), only the least significant byte will be actually written to the Programmable Sound Generator. Access to PSG Reg. 14 (IO-A) used for the joysticks is also not precluded via the SOUND command. If you experience difficulty in reading the joysticks, do a write to PSG Reg. 7 clearing bit 6 to 0 to guarantee that the joystick path is enabled for input. This write can be done by executing a SOUND 7,63 (or any value less than 63).

121 Use the following machine language program when you want to clear just the bottom portion of the screen during a program. The program takes just six bytes to do the work. Actually it calls a much longer routine in ROM and passes on a single byte parameter which is first loaded into the B register.

```
PCLS      LD B,n  
          CALL 0A2C  
          RET
```

where n (the number of lines from the bottom of the screen which you wish cleared) is the byte to be loaded into B. It must not be more than 24 (decimal or 18 hex), as this is the number of lines on the ZX display. This idea was taken from a book by David Woods and was reported by Jim Pitts in the SLUG newsletter. A BASIC program which does the same thing is as follows.

Make a 1 REM line with 6 periods in it.

```
< 1 REM .....>  
POKE 16514,6  
POKE 16515,0  
POKE 16516,205  
POKE 16517,44  
POKE 16518,10  
POKE 16519,201
```

Now further down in your BASIC program, when you want to partially clear your screen, place the line POKE 16516,n when n is the number of lines from the bottom which you wish cleared, and then in the next BASIC line call the routine with RAND USR 16514.



122 Here is a programing hint especially useful if you are using one of the Sinclair computers like the ZX81 which does not have a RENUMBER command as the QL does. Do not number your program lines consecutively. Leave gaps between every line number so that corrections and additions can be easily inserted. Most people program using every 10 or every 100 line numbers as 100, 110, 120, ... or 100, 200, 300, ...

123 Warning. SuperBASIC on the QL does not assume that the pointer is at the start of the data line. To ensure that it is before the execution of a READ, you must include a RESTORE. If you do not, you will get an error message saying that you have reached end of file in the READ statement.

124 The T/S 2068 certainly was not made with the ham in mind. The crystal oscillator which drives the counter chain to get the video timing runs at 14.112 MHz. The 280 CPU runs on a 3.538 MHz clock signal. The pixel data is shifted out to the video generation circuitry at a 7.056 MHz rate.

The following QL antenna program by T. Shields was found in the QUANTA (QL Users and Tinkerers' Assoc.) library from U.K.

\*\*\*\*\* Contributed by Bob Howard, WA6DLI 3-2-88 \*\*\*\*\*

```
100 REMark Antennae
110 CLEAR:CSIZE 3,1:WINDOW 512,256,0,0:PAPER 2:INK 7:CLS
120 LET wait$="Any Key Continues":LET u=20:LET v=31
130 AT 2,11:PRINT"ANTENNAE":CSIZE 1,1:AT 5,29:PRINT"by":
    CSIZE 2,1:AT 7,15:PRINT"T. Shields":AT 11,12:PRINT wait$
140 REPEAT wait:IF INKEY$<>"" THEN EXIT wait
150 LET sing$="-----
    -----":REMark 84 '-'
160 LET doub$="=====
    =====":REMark 84 '='
170 LET hedr$="      Velocity Factors:-      Solid Coax = 0.66
    Foam Coax = 0.80"
180 OPEN #5,scr_512x35a0x0:PAPER #5,0:INK #5,7:BORDER #5,5,3,2:
    CLS #5
190 WINDOW 512,221,0,35:PAPER 0:INK 4:CSIZE 0,0:CLS
200 PRINT #5:PRINT #5,hedr$
```

```

220 AT 1,10:PRINT"Enter the Frequency in MHz for antenna (eg.
      14.2)____";:INPUT mhz$:IF mhz$="" THEN GO TO 210

230 AT 2,10:PRINT"Enter the velocity factor for the feed line_
      _____";:INPUT vel$:IF vel$="" THEN GO TO 230

240 LET vel=0:LET vel=vel&vel$:LET ant=468*12

250 PRINT:PRINT sing$:LET factor=1:GO SUB 260:LET feet=ft:
      LET inch=in:LET factor=vel:GO SUB 260:LET cofeet=ft:
      LET coinch=in:GO TO 270

260 LET ft=((ant/mhz)+.5)*factor:LET ft=INT(ft):LET ft=ft/12:
      LET in=((ft-INT(ft))*12)+.5:LET in=INT(in):LET ft=INT(ft):
      RETURN

270 AT 5,15:PRINT"A 1/2 wave antenna will be.....";feet;" ft.
      ";inch;" in."

280 IF feet/2=INT(feet/2) THEN LET feets=feet/2:LET inches=
      inch/2:GO TO 300

290 LET feets=INT(feet/2):LET inches=inch/2+6

300 AT 7,15:PRINT"1/4 wavelengths for the above are.....";
      feets;" ft. ";inches;" in."

310 AT 9,15:PRINT"A 1/2 wavelength of coax is.....";cofeet;" ft.
      ";coinch;" in."

320 IF cofeet/2=INT(cofeet/2) THEN LET coft=cofeet/2:LET coin=
      coinch/2:GO TO 340

330 LET coft=INT(cofeet/2):LET coin=coinch/2+6

340 AT 11,15:PRINT"A 1/4 wavelength of coax is.....";coft;" ft.";
      coin;" in."

350 PRINT:PRINT doub$

360 AT u,v:PRINT wait$:CLOSE #5

370 REPEAT wait:IF INKEY$<>"" THEN EXIT wait

380 CLS:GO TO 210

```

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## QZX FRIENDS

VE3PRW -- Michael sent in a two year renewal and a little extra for postage. The extra is greatly appreciated because the postage for Canadian subscribers is more than three times that for US subscribers.

WDFJI -- Bill, who is starting a T/S 2068 magazine, subscribed; and said that he was thinking of starting a packet BBS, initially with a T/S 2068 but eventually using a QL.

WB0QPI -- Lloyd renewed even though his ZX81, T/S 1000, and T/S 1500 are not working just now. He even included a bit extra for the postage increase.

## UNCLASSIFIED ADS

WANTED: UNCLASSIFIED ADS for publication in QZX. Cost is 1 cent for each keystroke (characters, blanks, etc.). Payment must be included with order. This is an excellent way to sell your program or unwanted equipment, ask for help, or find a specific program. Send your ad with payment to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: Index to QZX consisting of a book of xerox copies of all the covers since December 1982. Send \$5.00 plus \$1.00 shipping and handling (\$2.00 if to a non-US address) to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: Book Inside CP/M Plus by D. E. Cortesi. Paperback 260 pages. Originally \$18.45 now \$9.00 postpaid in US. Very good for QL users with CP/M. Alex. F. Burr, K5XY, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: Book ZX81 BASIC Book by Robin Norman. Paperback 190 pages. Originally \$12.95 now \$6.00 postpaid in US. Simple and clear introduction to ZX81 BASIC. Alex. F. Burr, K5XY, 2025 O'Donnell, Las Cruces, NM 88001.

## Timex Goodies

1. Winky board II easy loading for TS1000/ZX81/TS1500
2. Z-dubber easy loading for TS1000/ZX81/TS1500
3. 2040 thermal printer & paper for TS1000/ZX81/TS1500
4. ZX-81 with large external keyboard
5. Hunter EPROM/RAM expansion board complete
6. Hunter EPROM/RAM expansion boards (3 blank)
7. Byte-Back 64K RAM expansion memory board for 81/1000/1500
8. Two misc ZX81 paperback books
9. NU4V NRAP tape and blank pc board (cw interface)
10. 70 ZX81 16K tapes, wide variety of software

This Timex/Sinclair equipment needs a good home with somebody who will use it themselves. One item will be sent to the first reader who requests a specific item (second choice allowed), encloses shipping money, promises to write something for QZX about its use, and encloses a self-addressed stamped envelope for use in case the equipment is gone before the request makes it here. Bo Barry, W4GHV, 8118 Kensington Lane, Harrisberg, NC 28075.

FOR SALE: Book UNDERSTANDING YOUR SPECTRUM by Ian Logan. Paperback 190 pages. Originally \$12.90 now \$6.00 postpaid in US. BASIC and machine code programming on the Spectrum. Details of Spectrum monitor entry points for those who have added the Spectrum ROM to their T/S 2068. Alex. F. Burr, K5XY, 2025 O'Donnell, Las Cruces, NM 88001

73, K5XY

QZX presents the best software & hardware projects available for the radio amateur. While the contents are believed to be accurate, no warranty is extended on any program or project. No investigation has been made of the claims or reputation of any advertiser. It would be greatly appreciated if all correspondence requiring an answer would be accompanied by a self-addressed stamped envelope (SASE). Copyright by QZX, 1988. All rights reserved, photocopying by permission only.

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